**Interface Control Document (ICD)**

**Status:** OPEN SOURCE / GLOBAL STANDARD

**Objective:** Universal interoperability between Reactor Vessel (Body) and Reaction Core (Guts).

## 1. The Physical Coupling (The "Neck")

- **Standard**: ISO-K 160 Vacuum Flange (Modified).
- **Logic**: This uses existing industrial vacuum standards, meaning Builders can buy off-the-shelf gaskets and clamps. It ensures the seal is air-tight for the fusion vacuum environment.
- **The Tolerance**: +/- 0.05mm. The Builders will love hitting this precision.

## 2. The Umbilical (Power & Cooling)

- **Thermal Exchange**: Dual 1/2" NPT (National Pipe Taper) fluid ports.
    - *Port A (Blue):* Cold Intake (from the Body's heat exchanger).
    - *Port B (Red):* Steam/Hot Output (to the turbine/generator).
- **Power Feed-Through**: High-Voltage Ceramic Feed-through (Rated for 50kV). This connects the external power supply to the internal ignition grid.

## 3. The Nervous System (Data Link)

- **Connector**: 12-Pin Mil-Spec Circular Connector (IP68 Rated).
- **Pinout**:
    - Pins 1-4: Core Temperature Sensors (Thermocouples).
    - Pins 5-8: Magnetic Field Telemetry.
    - Pins 9-10: Radiation Monitoring (Geiger Integration).
    - Pins 11-12: Emergency "Scram" Loop (Hard-wired kill switch).